Green Stormwater Infrastructure: The Basics

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Overview

Seattle Stormwater Challenges

Green Infrastructure Tools

Evolution of Green Infrastructure in Seattle

Looking Ahead

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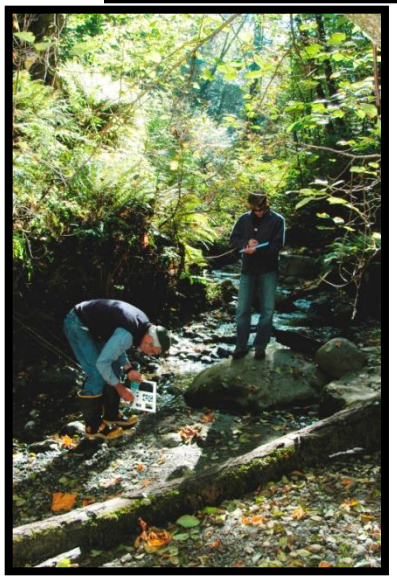
Stormwater Challenges



Flooding/ Inadequate Conveyance

Urban Creeks - Erosion and Habitat

Water Quality- Stormwater and Sewer Overflow

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Tries to make this…

…function more like this.

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Green Stormwater Infrastructure








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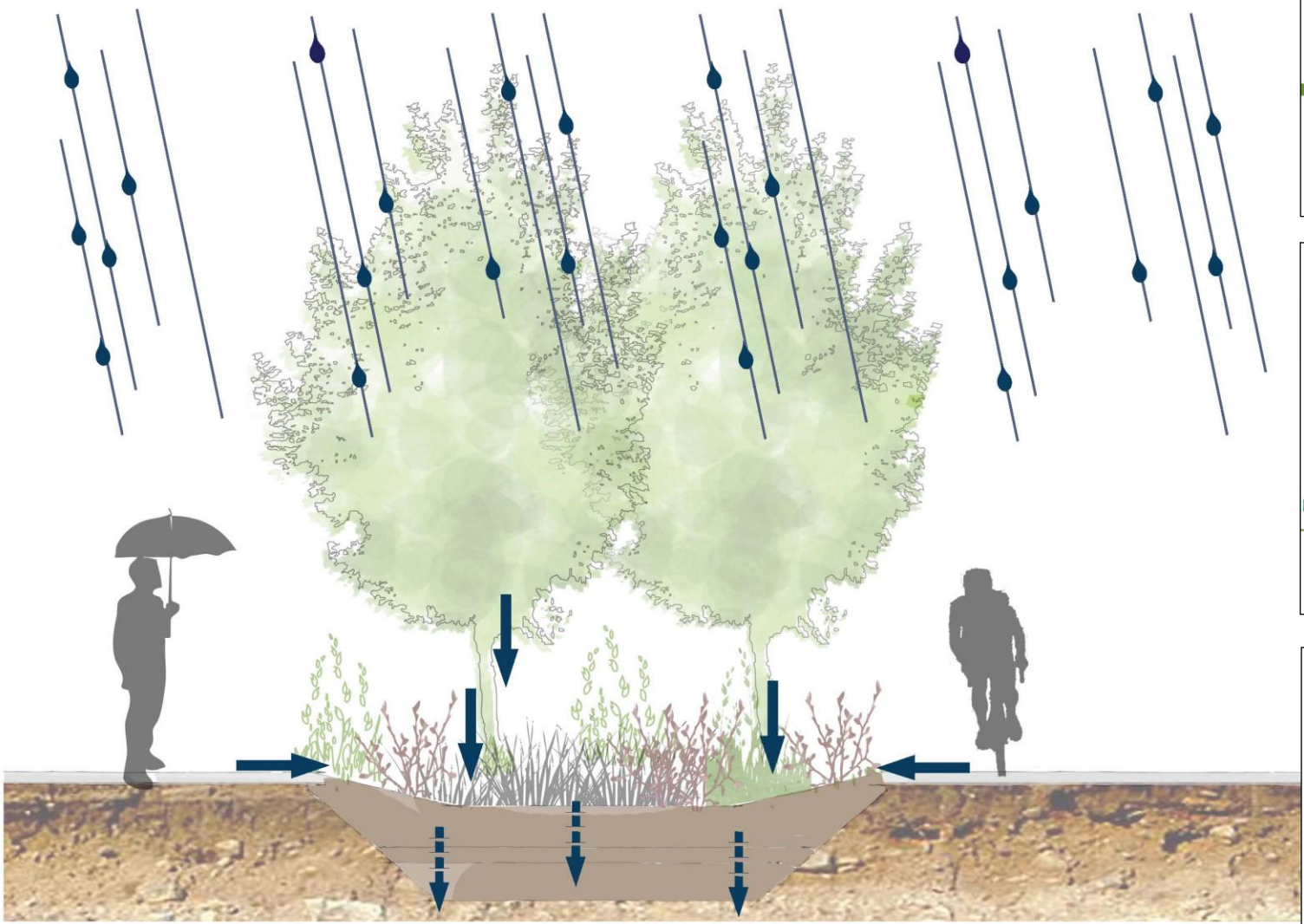
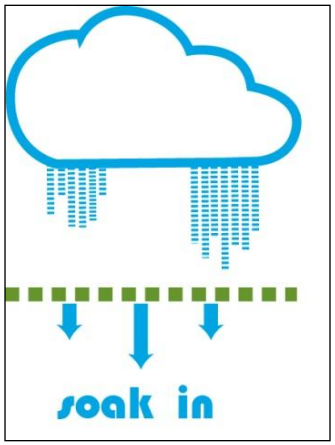
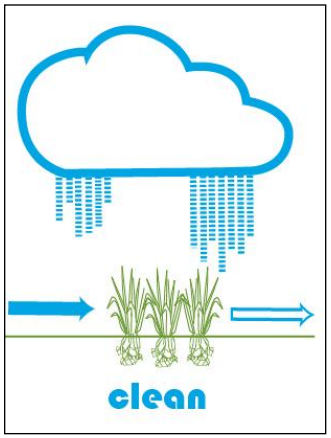
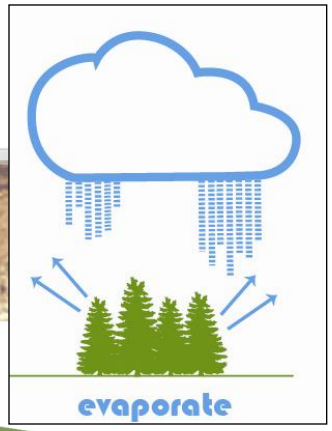
Bioretention (Rain Garden)

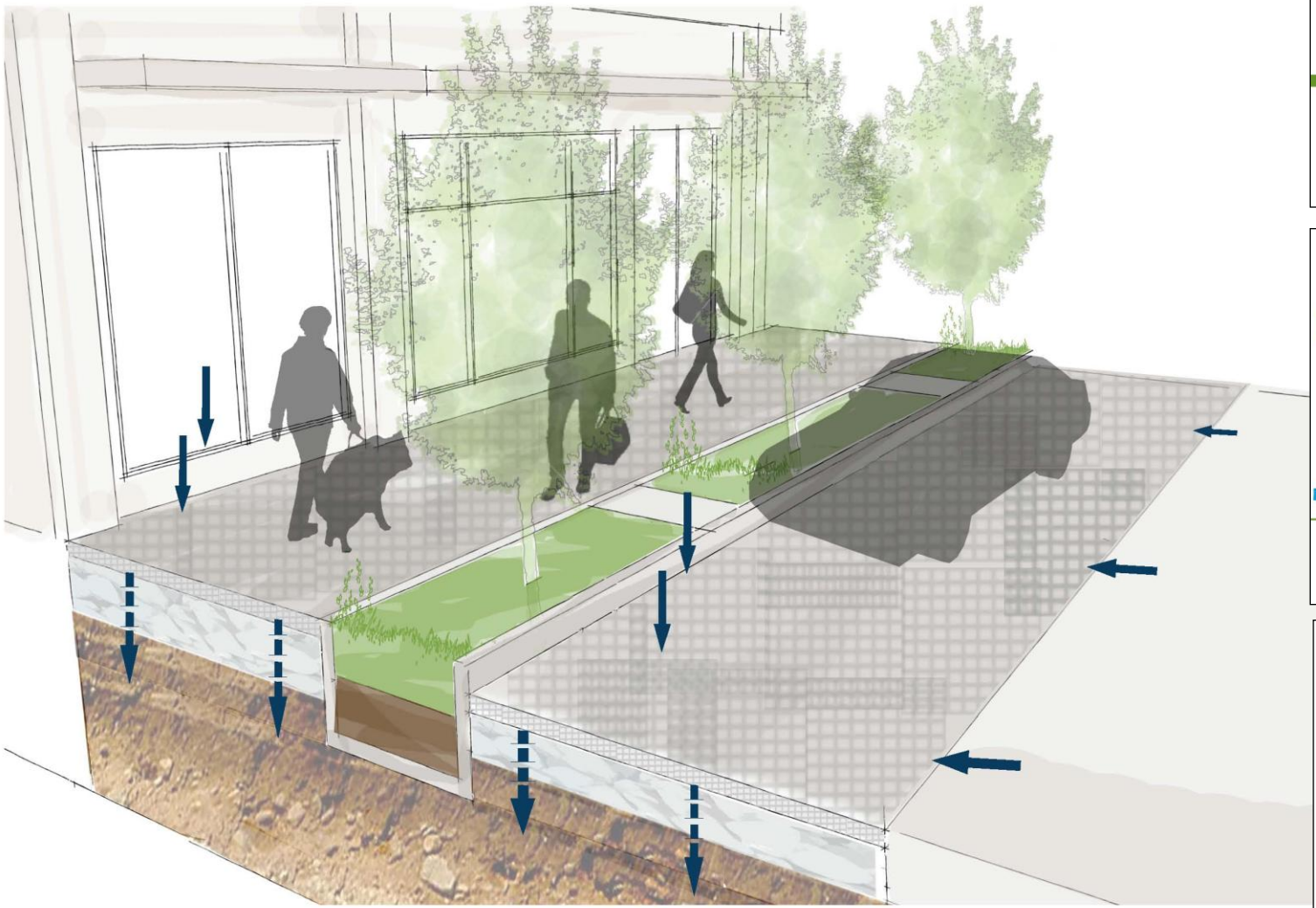


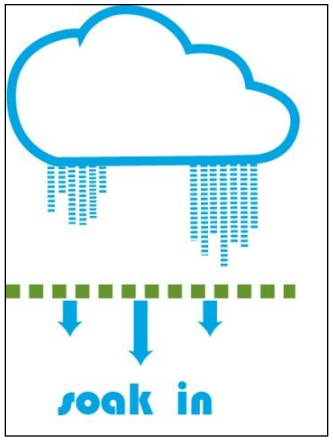


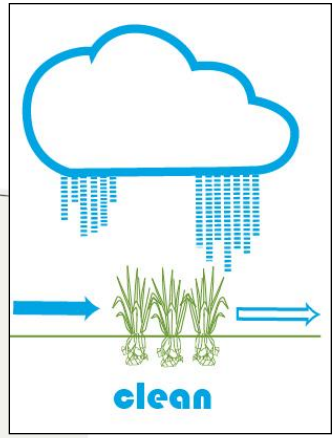


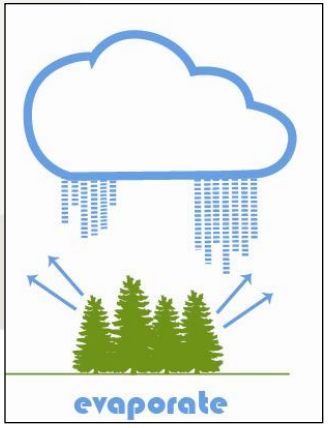


Permeable Pavement

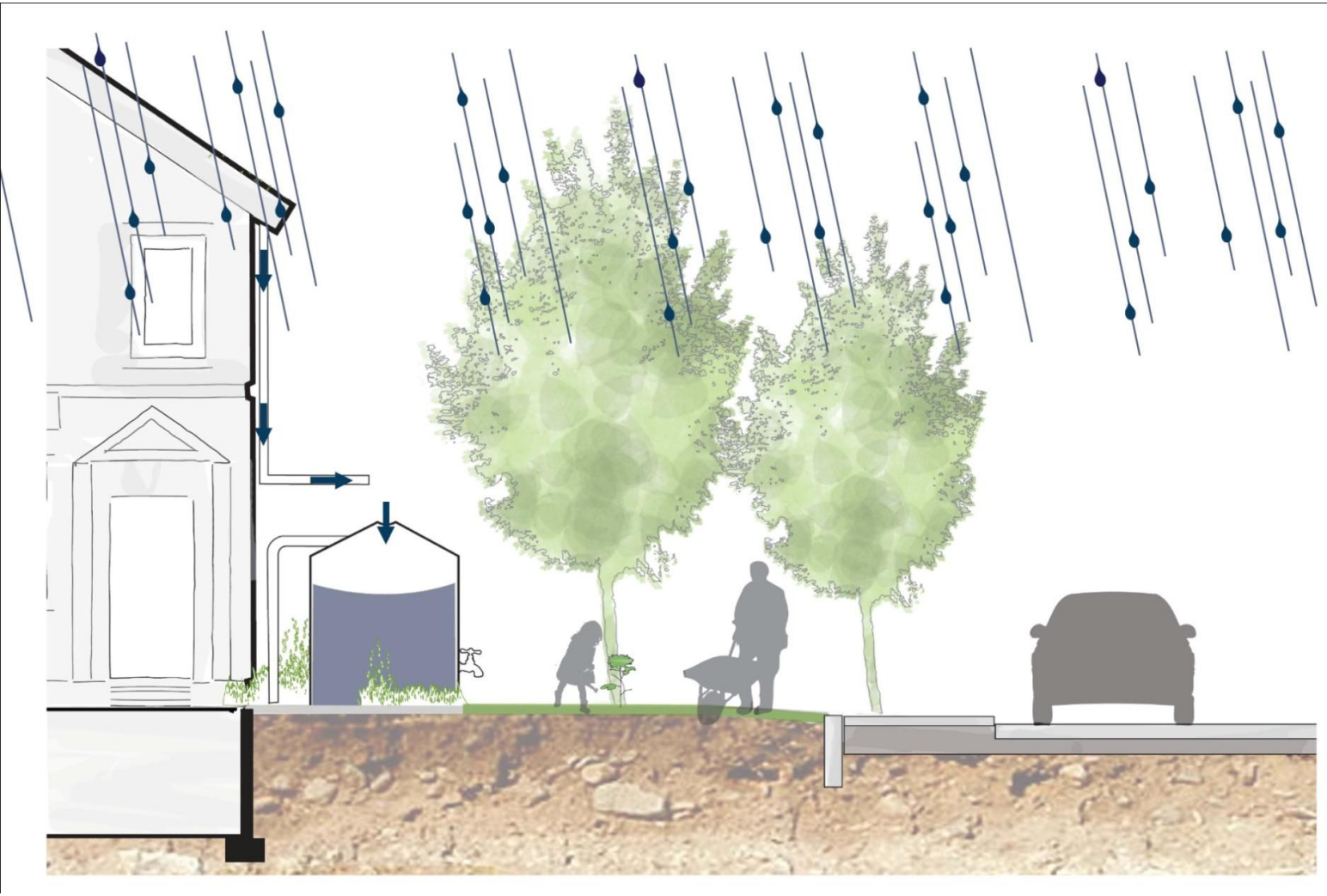


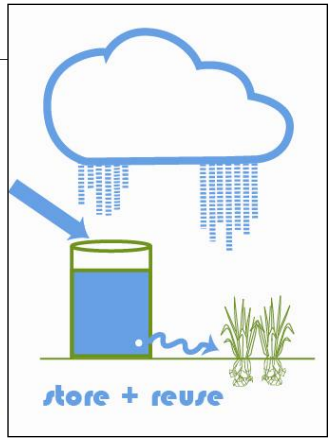


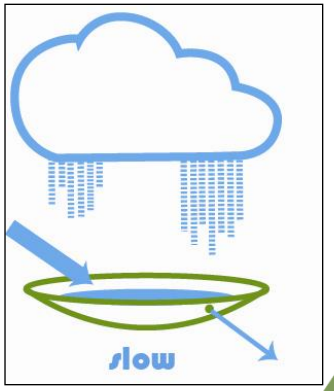




Rainwater Harvesting / Cisterns







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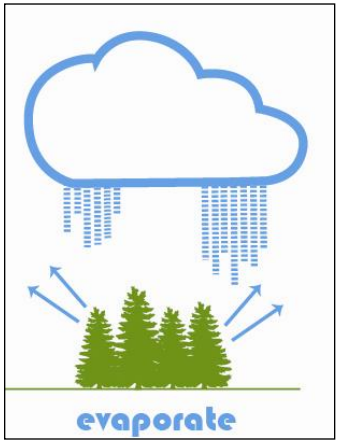
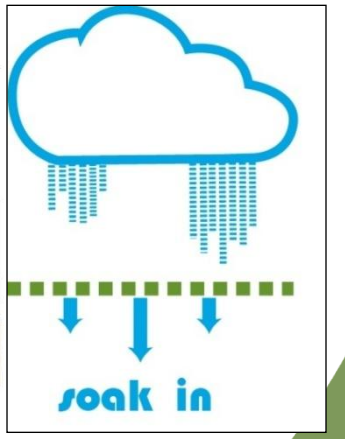
Trees





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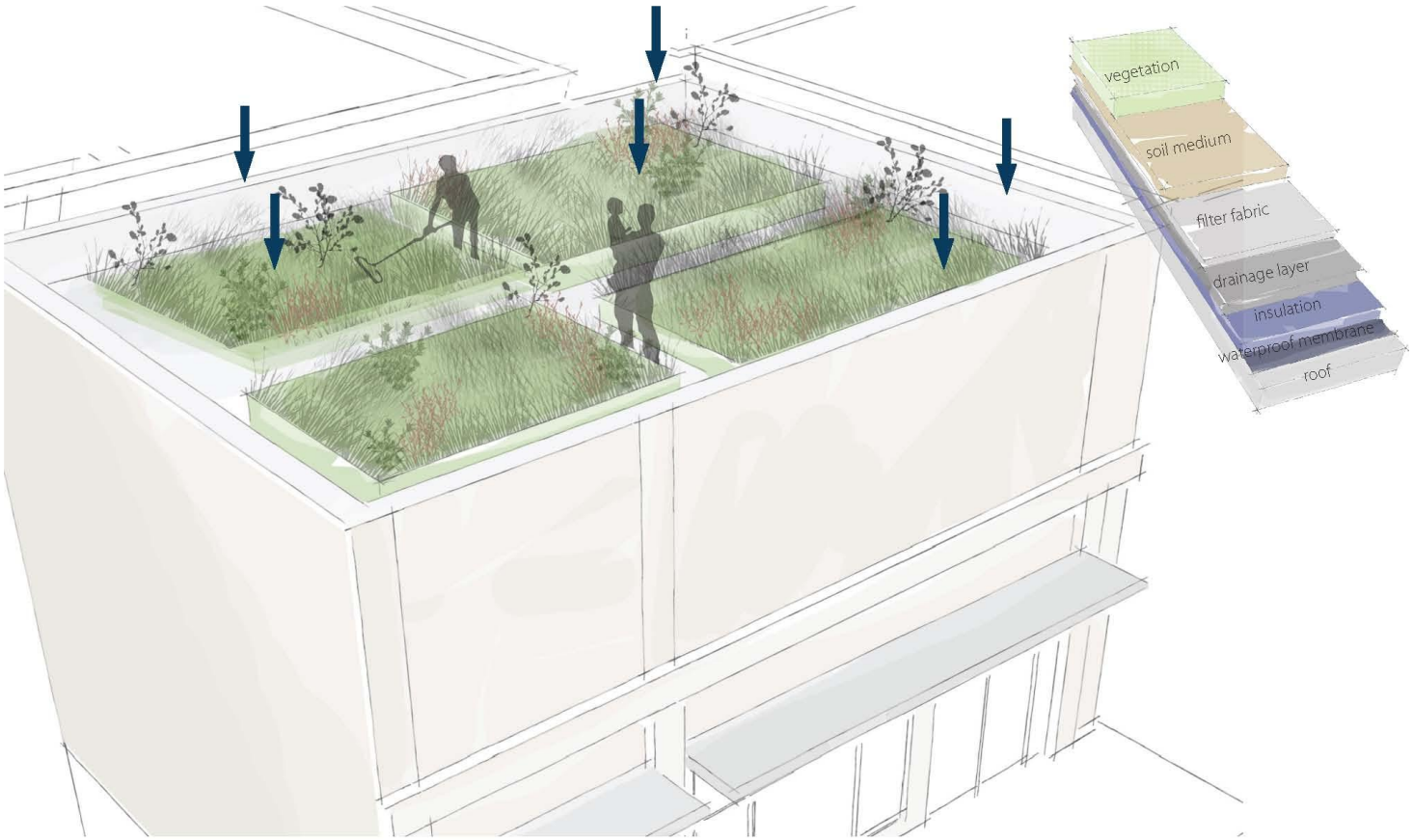
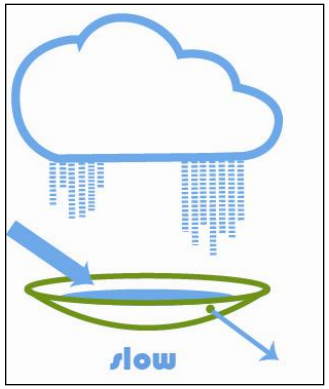
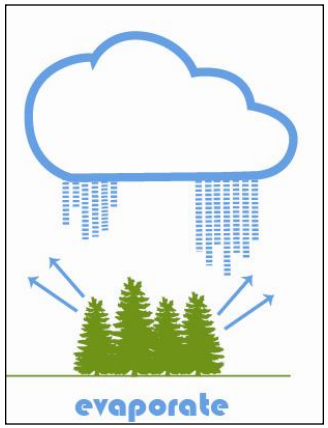
Vegetated Roofs







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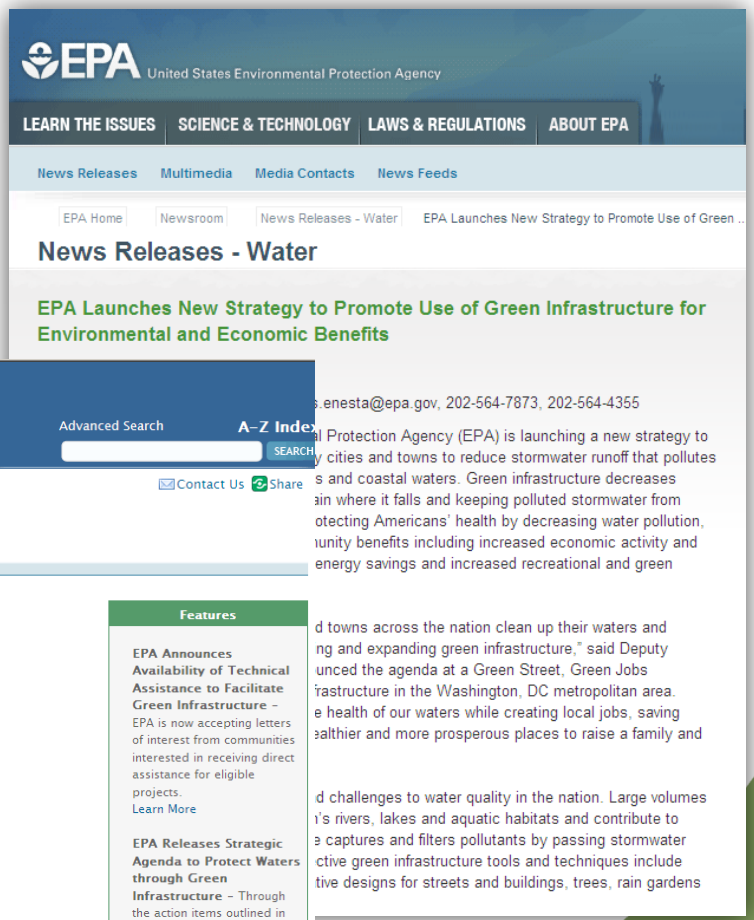
Proven method for managing stormwater



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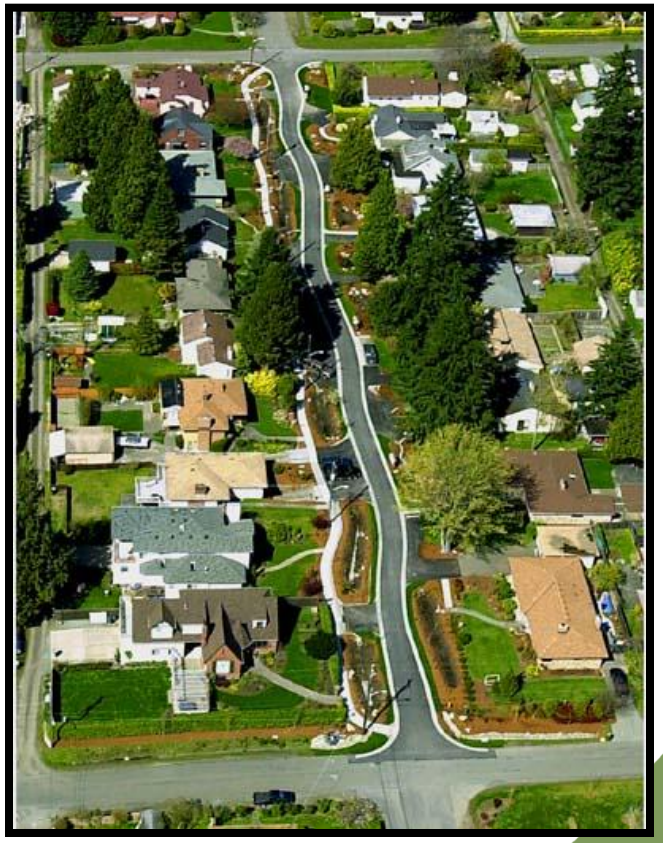
Growing the Program: Building GSI Experience and Knowledge

Project	Project Drainage Area
SEA Street #1	2 acres
Carkeek Cascade	28 acres
Broadview Natural Drainage System	32 acres
Pinehurst Natural Drainage System	49 acres
High Point	129 acres
Thornton Creek Water Quality Project	660 acres
Ballard Roadside Rain Gardens	3 acres
Swale on Yale	435 acres

The Beginning of GSI in Seattle: SEA Street

- Achieved 99% reduction in runoff
- Treated local runoff only
- Added formal drainage system and sidewalk



Pre-project

2001

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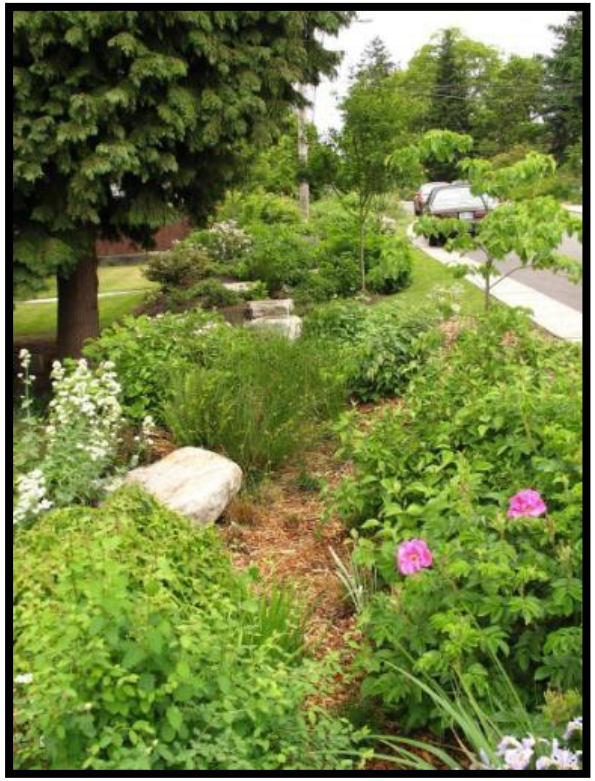
Broadview and Pinehurst Natural Drainage Systems



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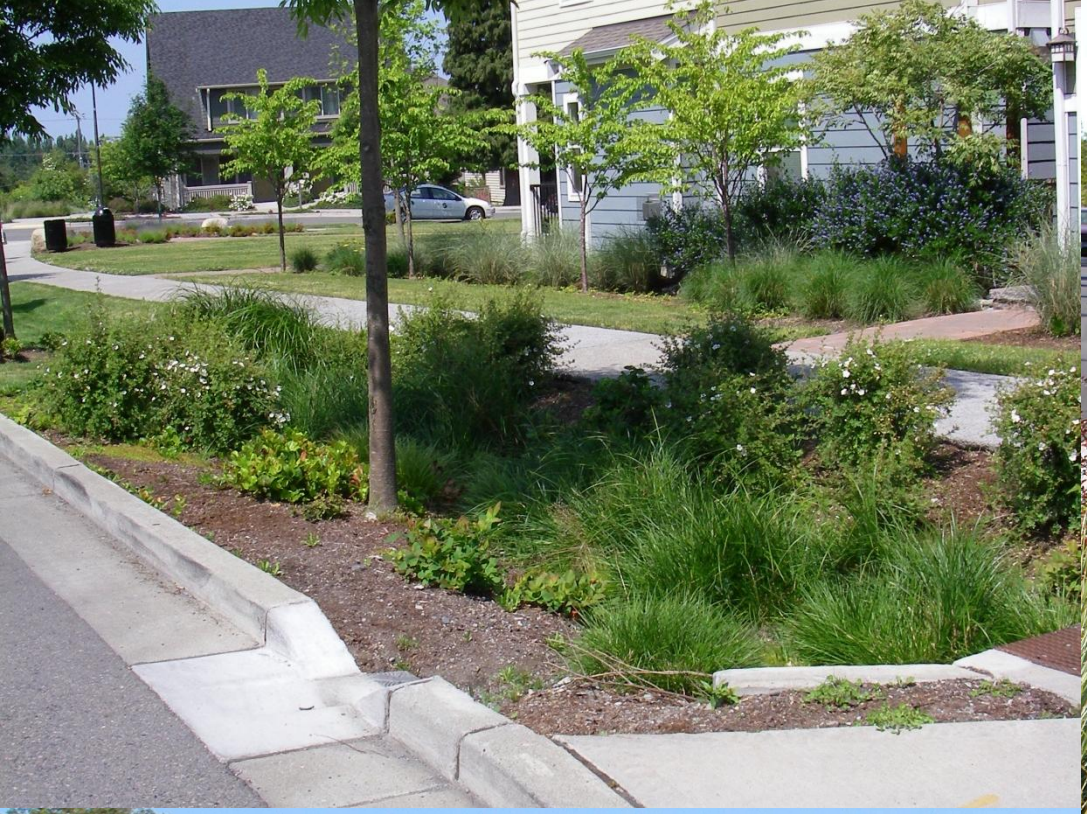

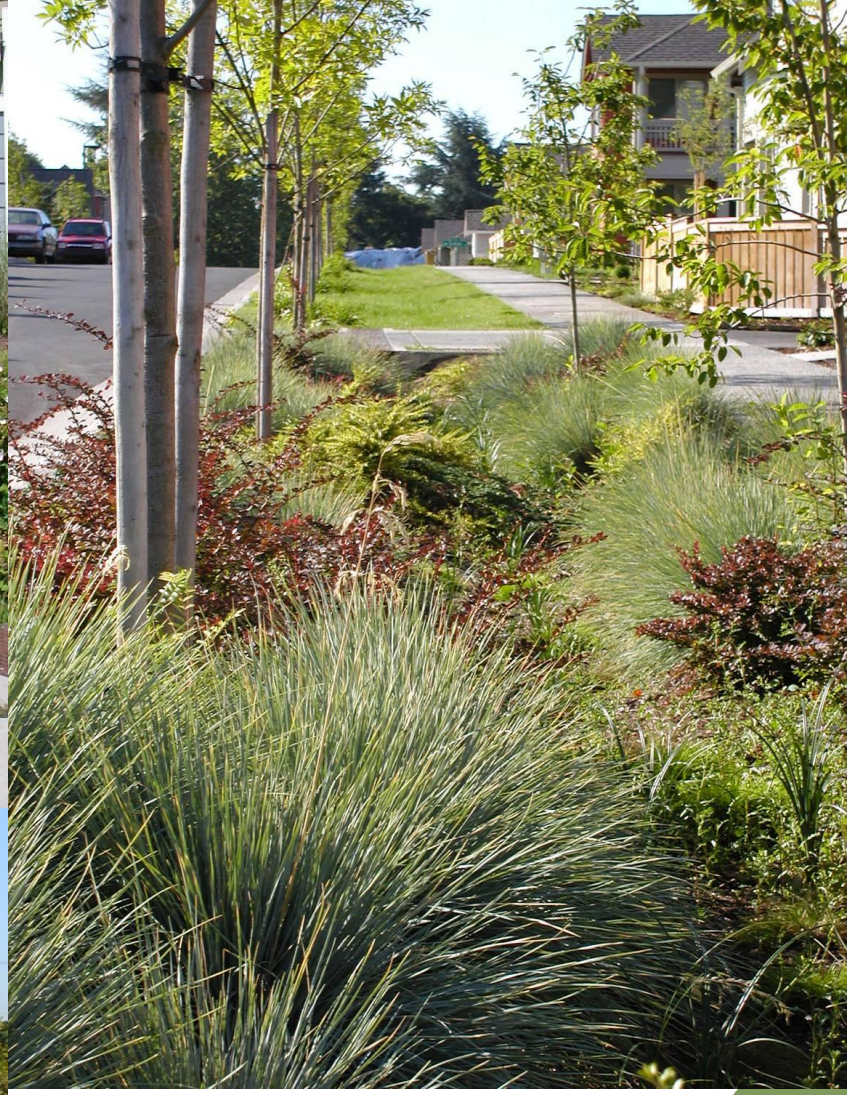

Porous Pavement

High Point

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Ballard Roadside Rain Gardens Pilot


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Ballard's new green infrastructure has some neighbors seeing red

Submitted by Michael Harthorne, KOMO Communities Reporter
Tuesday, January 25th, 02:15pm

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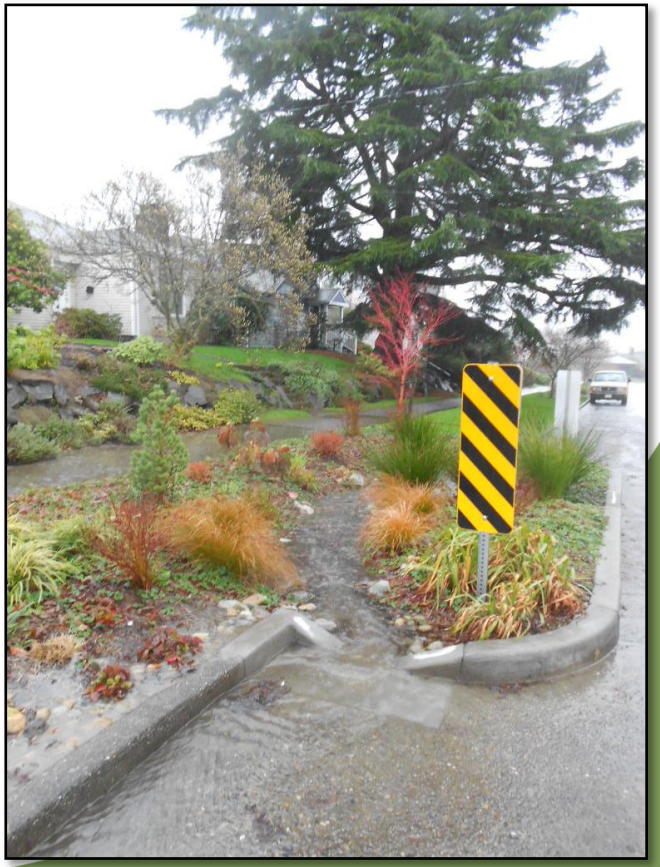
When Seattle Public Utilities began installing 10 blocks of rain gardens in Ballard in June, the typically green neighborhood – residents boast of having "Undriver Licenses" and are working to build a solar power-generating park – had visions of less storm water runoff in the streets and a healthier Puget Sound.

Ballard
Roadside Rain Gardens



Lessons Learned

- Conduct thorough technical work up front
- Understand the Community Context
- Timely, Clear and Transparent Community Engagement
- Be prepared to adjust to site conditions during construction

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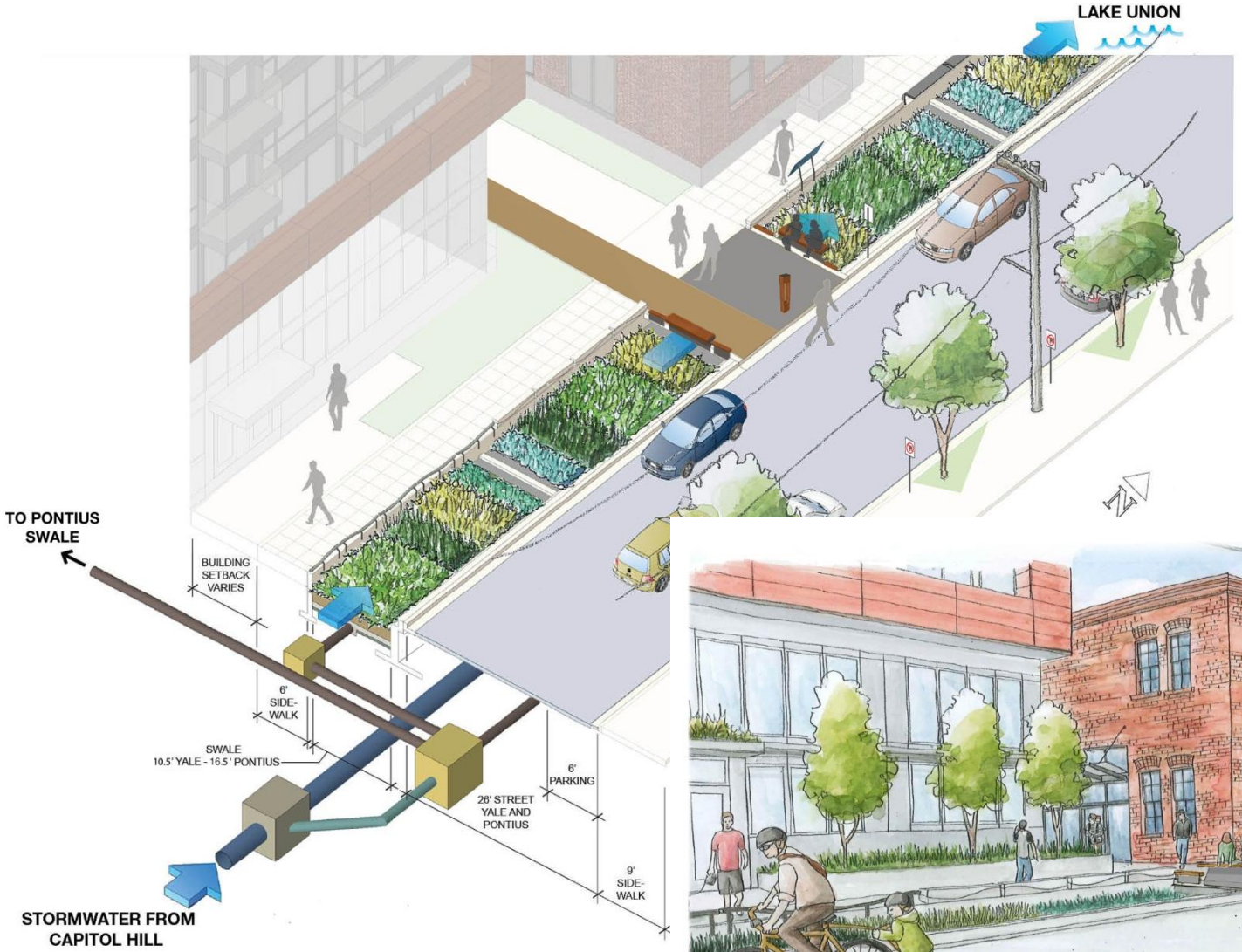
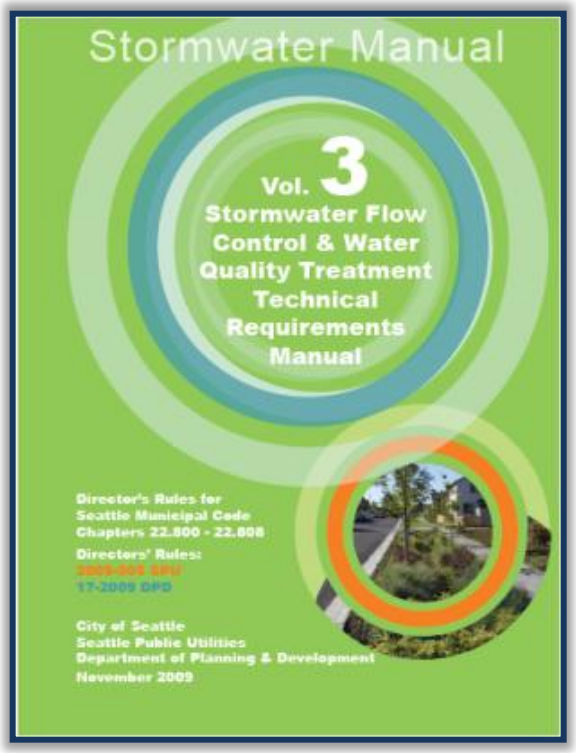
Capitol Hill Water Quality Project/ Swale on Yale



Seattle's Stormwater Code Requires GSI



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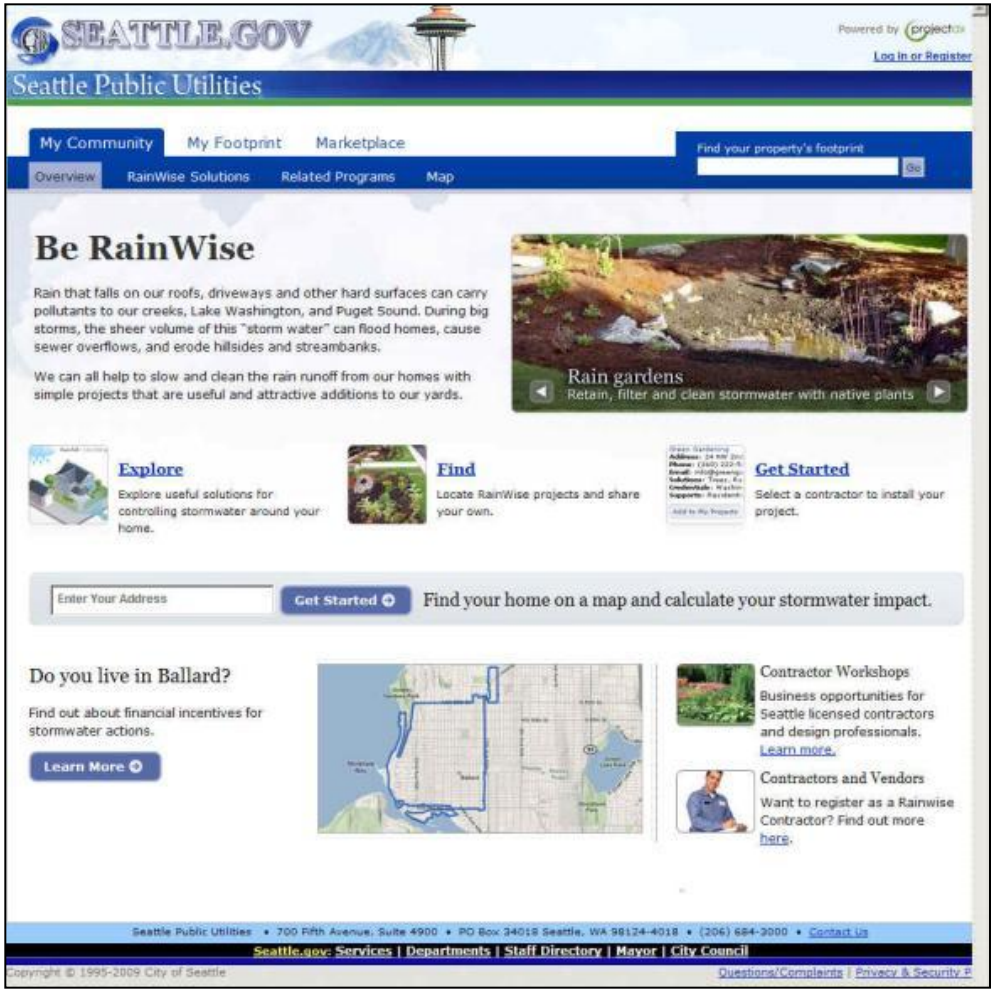
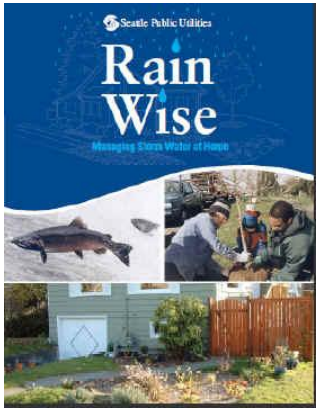
Incentives for Voluntary Use: RainWise





www.rainwise.seattle.gov

Why GSI in the Urban Drainage Strategy?

Many benefits beyond better water quality

- **New small-business opportunities;**
- **Flexible responses to adapt to climate change;**
- **Groundwater recharge;**
- **Improved neighborhood streetscapes**
- **Opportunity for residents and businesses to help through actions**

GSI Strategies Going Forward

- Meet regulatory requirements
- Require during redevelopment and new development
- Partner in City projects and programs to meet multiple goals
- Incentives for voluntary use

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Questions?

Tracy Tackett
GSI Program Manager
www.seattle.gov/util/greeninfrastructure